THE ECONOMIC IMPACT OF INSUFFICIENT PREVENTIVE HEALTHCARE FOR TENNESSEE WOMEN

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PREFACE….A PARABLE

While walking along the banks of a river, a passerby notices that someone in the water is drowning. After pulling the person ashore, the rescuer notices another person in the river in need of help. Before long, the river is filled with drowning people, and more rescuers are required to assist the initial rescuer.

Unfortunately, some people are not saved, some victims fall back into the river after they have been pulled ashore. At this time, one of the rescuers starts walking upstream. "Where are you going?" the other rescuers ask, disconcerted. The rescuer replies, "I'm going upstream to see why so many people keep falling into the river in the first place."

As it turns out, the bridge leading across the river upstream has a hole through which people are falling. The upstream rescuer realizes that fixing the hole in the bridge will prevent many people from ever falling into the river in the first place.……..

TABLE OF CONTENTS

AN INTRODUCTION AND MESSAGE FROM THE CHAIR

Tennessee's women comprise 51% of our population, with many being single heads of households. As such, they are the lynchpins of our family systems and are the backbone of our economic wellbeing. This report – the fourth in a series of economic impact studies published by the Council – focuses on the need for attention to the requisites of good health for Tennessee's women – especially those who fall below the poverty line or among the working poor. .

Like every other economic issue facing women, the costs of healthcare becomes a cyclic drain. The actual cost of medical care and service is the tip of the iceberg. The wage gap means that, based on income share, medical expenses take a larger portion of a woman's income than that of a man. Thus, according to a recent study by The Commonwealth Fund, women are more likely to postpone or avoid needed care because of cost, and they are more likely to incur medical cost-related debt problems.

Talk to anyone you know about healthcare costs and you'll likely discuss the bills you've received or the cost of prescriptions. In fact, despite the increase in lower cost generic prescription plans being offered today, the price of prescription drugs increased an average of 7.5% from 1994 to 2006. To put that number in perspective, over that same time period, the inflation rate was about 2.6%. As a nation, we spend about $2.1 trillion a year on healthcare. Of that about $924 billion is government funded, $1.176 trillion is private insurance/private pay based, and $210 billion is spent yearly on pharmaceuticals and diagnostic testing.

These numbers, especially when discussed as real dollars, are daunting as is their effect. In Tennessee, for example, of the approximately 62,000 personal bankruptcies that were filed in 2004, over 31,000 were "medical" bankruptcies. Over 86,000 Tennesseans were affected by a medical bankruptcy in one year alone. So, if we're spending so much, we have to be getting healthier, right? Nope.

According to a 2007 study by the Women's Law Center, Tennessee ranks 45th in overall healthcare for women and received a grade of "F." As will be discussed in this paper, many of the indicators leading to that grade are based on health-related activity and key causes of death among Tennessee's women. Interestingly, and hopefully, measures are within out own hands that can turn these numbers around.

Empowering women to become economically autonomous doesn't mean simply providing new information or locating new sources for potential response. Empowerment is not just knowledge; it's what one does with that knowledge. The lack of preventative healthcare for many Tennessee women is expensive. It is costing millions in dollars and inestimable amounts in lives. It is an economic issue worth exploring and addressing. Given the state of the general economy and the fact that Tennessee has one of the nation's highest rates of emergency room and prescription drug usage, it is necessary for a variety of reasons that we turn our attention to the need for quality healthcare for women as an economic imperative

It is my privilege to Chair the Tennessee Economic Council on Women and to be a part of this study. Thank you in advance for your time and thoughtful attention to its contents.

Carol Berz, Chair, Tennessee Economic Council on Women

About The Tennessee Economic Council on Women

Mission

The Tennessee Economic Council on Women is an economic advocate for women. It assesses Tennessee women's economic status, and develops and advocates solutions to address women's needs and helps them achieve economic autonomy. It sets priorities that are timely, cost-effective, and likely to result in positive changes for women.

Vision

The Tennessee Economic Council on Women will be the information source for Tennessee women.

Who We Are

The Tennessee Economic Council on Women is a state agency with 21 appointed members and an Executive Director. The Governor appoints six (6) members. The Speakers of the House of Representatives and the Senate jointly appoint nine (9) representatives of the State's Development Districts. The Speaker of the Senate appoints two (2) Senators and the Speaker of the House appoints two (2) Representatives. The Tennessee black caucus of state legislators and the legislative women's caucus make one appointment each.

What We Are About

The One Hundredth General Assembly created the Tennessee Economic Council on Women (TCA § 4-5-101, et seq.) to address the economic concerns and needs of women in Tennessee. These concerns and needs include, but are not limited to, employment policies and practices, educational needs and opportunities, child care, property rights, healthcare, domestic relations and the effect of federal and state laws on women.

The Council conducts research, holds hearings, develops recommendations and policy, educates the public, and engages in activities for the benefit of women. It is authorized to request funds from the federal government and private sources. The Council consults with and reports to the Governor, the Women's Legislative Caucus, the General Assembly and the pertinent agencies, departments, boards, commissions and other entities of State and local governments on matters pertaining to women.

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OVERALL FINDINGS

The United States spends the majority of its healthcare dollars on the direct care of medical conditions, while only a small portion is targeted on preventing debilitating conditions. Lack of preventive care in America means we spend increasing amounts on medical care while having very little impact on the social circumstances, environmental conditions, and behavioral choices that have an even more profound effect on health.

The health status of Tennessee women is surpassed by the majority of states. In 2007 the National Women's Law Center examined women's health and well-being in each of the states using twenty-seven health status indicators including heart disease mortality, lung disease mortality, breast cancer mortality, incidence of diabetes, incidence of Chlamydia, incidence of AIDS, poor mental health, access to healthcare services (including insurance coverage), available health screenings, and physical activity and behavior indicators. Benchmarks for each of these indicators were set and evaluated nationally and using specific state information. Tennessee's rank was 45th among states with a grade score of F.

Stated simply, prevention is indeed essential for women to meet basic healthcare standards. However, the role of preventive care in society is not merely about meeting a medical standard, but obtaining a higher quality of life. Women's health status and quality of life is central to their ability to earn money and fulfill responsibilities.

For Tennessee's women, the health-related rankings offer little encouragement. Tennessee women rank 47th for high blood pressure and 48th for diabetes, for example. Not surprisingly, Tennessee ranks 50th in leisure time physical activity, 42nd in obesity and 48th in smoking.

As a nation, we spend about $2.1 trillion a year on healthcare. Of that about $924 billion is government funded, $1.176 trillion is private insurance/private pay based, and $210 billion is spent yearly on pharmaceuticals and diagnostic testing.

RECOMMENDATIONS

Tennessee is fortunate to have a variety of programs designed to improve the health and life of women who face significant socioeconomic barriers. The Council recommends an extension of these services, especially as they relate to screening programs for cancer, nutrition, parenting skills, basic healthcare and prenatal care. These programs not only provide essential diagnosis and treatment information, they also assist in developing health maintenance habits that lead to healthier women and children.

Federal funding for prevention is available at the state level through multiple grant sources, but preventive care is rarely extricated from the complexities of a multifaceted healthcare system. For example, the Preventive Services Block Grant contributes to activities covered by this report, such as screening for cancer, cholesterol, and diabetes, as well as more broadly defined prevention: fluoridation of water, providing bicycle helmets, and supporting the construction of walking trails. Other prevention programs include smoking cessation and diabetes treatment. The Council recommends full application and use of these funds to continue basic preventive healthcare.

The Council also recommends that all municipalities, regardless of size or population, review their approach to preventive healthcare and continue to prioritize healthcare as they change and grow. Issues regarding transportation options, school curriculum and after-school programs, employer benefits and zoning, for example, have an impact on the health of the citizenry.

Technological advancements have been made not only the diagnosis and treatment of illnesses but in the administration of healthcare. The Council recommends that the dialogue regarding the implementation of an online system of patient record maintenance continue. Time is a significant factor, especially for women, when accessing necessary healthcare – both preventive and diagnostic/treatment. The ability to access complete patient history, prescribed medications and physician contact information in one place would alleviate many of the barriers women experience in accessing healthcare. Technological advancements also allow better physician-to-physician communication and the Council applauds and recommends the further development and use of programs such as the Governor's eHealth Advisory Council's TeleHealth project.

Good health is about more than treating disease: it is about quality of life. Comprehensive Health Programs address the roots of quality of life, the barriers to consistent preventive care and behavioral risk factors. These programs reach women where the obstacles to health care have left them, often visiting them in their homes and providing education about preventative measures and service access. Good health requires education in order for the individual to become her own best advocate for health. Long-term patient/physician relationships help encourage overall healthy lifestyles by addressing behavior-based risk factors such as obesity and tobacco use. Good health for women is important not only during prenatal and postpartum periods but throughout a woman's life. Programs that acknowledge the roots of health, a woman's lack of financial ability to access services, her insurance status, transportation availability, care giving responsibilities, and time and attitudinal barriers, give her a better chance at good health, longevity and productivity.

DEFINING THE CONCEPT OF PREVENTIVE HEALTHCARE

Healthcare contains a component of prevention in its very conception. Care and attention are focused on the maintenance of health as well as on the treatment of existing illness. The Tennessee Department of Health's mission to "promote, protect, and improve the health of persons living in, working in, or visiting the state of Tennessee"[1] supports this twofold approach to wellness: prevention and treatment.

In this report, preventive healthcare will refer to the two complementary aspects of prevention. First, primary prevention refers to activities designed to prevent illness and disease by addressing risk factors for morbidity.[2-3] Immunizations, good nutrition, and avoidance of aggravating substances are examples of primary prevention[4] and though only the first takes place in a medical setting, the latter two may be encouraged during individual physician-patient interactions. Secondary prevention, in turn, does not prevent the incidence of disease but targets a reduction in morbidity and mortality through the early detection and diagnosis of disease. This prevention is cast as early intervention, aiming to prevent further progression of the disease with "prompt and effective treatment"[5] following procedures such as cancer screenings.

> ***We are still standing on the bank of the river, rescuing people who are drowning. We have not gone to the head of the river to keep people from falling in. That is the 21st century task.***
>
> *—Gloria Steinem, playing on the popular upstream/downstream analogy of preventive healthcare*

Though preventive activities may be broadly defined to include education, empowerment, and research,[6] this report will focus on prevention delivered primarily within a clinical setting when exploring factors relating to the access and utilization of preventative healthcare. The role of healthcare professionals directly advising or guiding patients toward preventive measures which should take place outside of this setting will be considered also, as the U.S Preventive Task Force asserts, "the clinician plays a pivotal role in both primary and secondary prevention."[7] Additionally, community based activities with clinical aspects—particularly certain smoking cessation and prenatal care programs—will be discussed.

By limiting prevention to these clinical settings, the Council is not valuing primary and secondary preventions as more effective, cost-saving, or specific to women than community interventions or tertiary prevention. The Council believes that encouraging prevention activities across the spectrum of prevention is central to an economic policy and a healthcare approach worthy of the 21st century. The spotlight of this research is simply placed on the area of prevention where women are most likely to encounter obstacles: the mindset surrounding seeking care before one is sick and when one first notices illness is imbued with economic considerations, influenced by economic status, and carries economic ramifications—the focus of this report.

THE ECONOMIC IMPACT OF INSUFFICIENCY

The United States spends the majority of its healthcare dollars on the direct care of medical conditions, while only a small portion is targeted on preventing debilitating conditions.[9] This deficiency in effective, comprehensive preventive care is connected with the United States' status as one of the least healthy industrialized countries. Lack of preventive care in America means we spend increasing amounts on medical care while having very little impact on the social circumstances, environmental conditions, and behavioral choices that have an even more profound effect on health. Increasingly, there is clear evidence that the major chronic diseases that account for so much of the morbidity and mortality in the U.S., and the enormous direct costs associated with them, are largely preventable

HEALTHCARE SPENDING IN THE U.S.[8]

2006: 2.11 TRILLION DOLLARS
$7,026 PER CAPITA
2007: 2.25 TRILLION DOLLARS
$7,439 PER CAPITA

In 2006, the U.S. totaled over two trillion dollars in healthcare expenditures.[10] These costs are estimated to total 16.3% of our nation's Gross Domestic Product (GDP) in 2007, and growth in healthcare spending is outpacing GDP growth so that nearly one-fifth of the U.S.'s GDP will be dedicated to healthcare in 2017.[11]. To a considerable degree these conditions stem from, and are exacerbated by, individual behaviors: Obesity, lack of physical activity and smoking substantially increase the risk of developing the most serious chronic disorders.[12] The Center for Disease Control reports that, in 2005, 133 million people, almost half of all Americans, lived with at least one chronic condition; the medical care costs of these people account for more than 75% of the nation's $2 trillion medical care costs.

There is no greater imperative in American healthcare than switching from a treatment-oriented society to a prevention-oriented society. Right now we've got it backwards. We wait years and years, doing nothing about unhealthy eating habits and lack of physical activity until people get sick. Then we spend billions of dollars on costly treatments, often when it is already too late to make meaningful improvements to their quality of life or lifespan.

—Richard Carmona,
17th Surgeon General of the United States

Forty-three countries have life expectancies that exceed the United States' average, and 40 countries have a lower infant mortality rate than the United States.[13] The U.S. spends twice as much as Australia, Canada, Germany, New Zealand or the United Kingdom for healthcare on a per capita basis, yet it ranks last on dimensions of access, patient safety, efficiency and equity.[14]

THE FEDERAL FOCUS ON PREVENTIVE HEALTHCARE

The realization that preventive healthcare serves is a cornerstone of well-being has begun to permeate federal initiatives. The well-known Healthy People 2010 campaign brings attention to prevention within and without clinical settings. The initiative, a more extensive outgrowth of Healthy People 2000 and soon to be followed by Healthy People 2020, defines itself thus:

Healthy People 2010 provide a framework for prevention for the nation. It is a statement of national health objectives designed to identify the most significant preventable threats to health and to establish national goals to reduce these threats.[15]

These national goals have become the benchmark standards for a variety of private and public surveys of health across the nation in various populations and subpopulations. Furthermore, the campaign, managed by the Office of Disease Prevention and Health Promotion, coordinates with many other federal agencies which have a strong prevention interest or feature including the Centers for Disease Control and Prevention, the Agency for Healthcare Research and Quality, and the National Institutes of Health. Each state health department is also a partner of the campaign, in addition to other community organizations, membership groups, and businesses.[16] The far-reaching infrastructure and plans of Healthy People 2010 are demonstrative of a federal impetus to reframe the healthcare challenge as promoting healthy lifestyles rather than treating illnesses.

TENNESSEE

The healthcare situation in Tennessee mirrors the national struggles. The 2007 America's Health Rankings positioned the state as the 46th healthiest state, likewise 46th in preventable hospitalizations, and ranked in the 40's for rates of cardiovascular and cancer deaths.[17] In contrast, the indicators of the healthiest state, Vermont, reveal the best rankings in smoking and obesity rates, children in poverty, the number of primary care physicians, and prenatal care. Interestingly, Vermont spends only two dollars more per capita on healthcare than Tennessee, ranking it 41st in spending though best in health.[18] Correspondingly, the Commonwealth Fund's analysis of state healthcare performance in 2007 found no evidence for a systematic relationship between the quality of care and healthcare expenditures on a state-by-state basis.[19]

Tennessee policymakers might look to the federal paradigm when considering healthcare policy for our citizens. Improving healthcare is not simply about spending, but spending smarter—fixing the problems at the head of the river so that the demand on lifesavers is not overwhelming.

The remainder of this discussion will focus about preventative healthcare as it relates to women. The Report will conclude with some far-reaching remarks about the economic sense of quality prevention to obviate the ever-skyrocketing costs of the archaic reactive model we now utilize – a paradigm that can change if we dare social approach to an economic abyss.

> ***Effectively addressing the range of health and social problems of the twenty-first century requires a fundamental paradigm shift that generates equity for the most vulnerable members of society and maximizes limited resources: moving from medical attention after the fact to prevention in the first place…***
>
> *—Larry Cohen and Sana Chehimi*
> *Authors of* Beyond Brochures:
> The Imperative for Primary Prevention

An early paradigm of women's health was centered on the role of women as child bearers, indeed associating most of women's health with reproductive influences on the body.[20] Though this myopic approach to the female body and its needs has expanded to encompass the entire life history of females, women's health continues to connote addressing topics ascribed solely to the female experience, such as pregnancy related issues and diseases specific to women, such as breast and cervical cancers.

> ***Gender is a fundamental social variable that affects individuals' social status, access to resources (such as education, income, healthcare), experiences of health and illness, and interactions with the healthcare delivery system.***
>
> *–Carol Weisman*
> *Ph.D, Women's Health Scholar*

Newer models integrate these subjects into a framework which includes the other health matters women encounter, even if they are shared with men. Furthermore, approaches to women's health must explore gender differences and discrepancies in all facets of women's healthcare and female access to health services.[21] For example, focus on the high incidence of heart disease among women and recognition of the poorer outcomes among female stroke victims are both essential components of approaching women's health. Thus women's health as addressed in this report shall indeed attend simply to the most common health-related avenues to decreases in the quality of life of women.

Within the new paradigm for women's health, prevention is a pivotal component. Carol Weisman suggests: "Specific roles for maternal and child health personnel might include articulating for the public and policymakers how normative conceptions of women's health are changing; defining a continuum of care for women (regardless of pregnancy status) that includes comprehensive preventive services…, identifying the components of women's health…that impact on the health of children, assessing women's unmet needs for services in communities, providing expertise in culturally sensitive care for disadvantaged minority populations of women, developing and evaluating innovative models of comprehensive care for women, and helping preserve and strengthen the healthcare safety net for uninsured, underinsured, and other underserved women."[22]

Stated simply, prevention is indeed essential for women to meet basic healthcare standards. However, the role of preventive care in society is not merely about meeting a medical standard, but obtaining a higher quality of life. Women's health status and quality of life is central to their ability to earn money and fulfill responsibilities. The social roles assigned by society dictate that women have greater care giving burdens[23] and make more health decisions for their children than male parents.[24] Their gender relegates them to a lesser economic position.[25] The value of preventive healthcare to women is thus immense, for the enormous direct costs of healthcare reveal only part of the story. The indirect costs of treating illness compound as work schedules, childcare, and care giving responsibilities require adjustment or abandonment to fit the exacting demands of disease management. The journey toward economic empowerment for many women can be truncated not by choice, but by the individual and societal failure to address the problem at the head of the river. [26]

Like every other economic issue, the fiscal impact of a woman's overall health extends beyond her own purse. The costs of her illness will affect her, her family, friends, employer and community. These costs absolutely encompass more than the direct medical costs associated with treatment; they can include payment to a professional caregiver while she can no longer fulfill her caretaking role in her family, the cost of transportation to and from doctors' offices, and the amount of lost wages when paid sick time is not available.

An ounce of prevention is worth a pound of cure.

—Henry de Bracton

Of course, the greatest economic burden is determined by not only the cost of an illness, but the prevalence of that illness. Here the costs associated with the diseases as well as the risk factors previously explored present a picture of the burden of disease on women, and in turn, society. What happens when the primary caregivers get sick? What happens when the half of the population with lower paying, more unstable jobs cannot go to work everyday? What is the cost of so many women falling into the river when a better bridge could be constructed?

As has been stated, Tennessee ranks in the mid- to upper-level in regards to women's access to healthcare services and screenings. With this in mind, how did we manage to rank 45th overall with a final grade of F?

The bad news first: Tennessee ranks 48th in coronary heart diseases death rate, 49th in stroke death rate, 42nd in lung cancer death rate and 43rd in breast cancer death rate.[27] The good news: a significant improvement in these numbers is possible with changes in our behavioral preventative care. In addition to the morbidity rata data, the National Women's Law Center Report Card also investigated "prevention" indicia.[28] Not surprisingly given the information on causes of death, Tennessee ranks as seen in this table:

Risk Factor	**Tennessee 2007 Ranking**
No Leisure-Time Physical Activity	50
Obesity	42
Smoking	48
Chronic Conditions	**Tennessee 2007 Ranking**
High Blood Pressure	47
Diabetes	48

I. REGARDING OBESITY

A. Demographics of Nutrition and Exercise: A review of the National Women's Law Center's information indicates that this is one area where we, Tennessee's women, are failing miserably. The report card ranks Tennessee's women 50th in leisure-time physical activity based on the available 2007 data.[29] Unfortunately, this indicates that we have made no improvements since information was gathered in 2005. Then, 33.1 percent of Tennessee's population reported no physical activity; women, more than men, tended to lead

more sedentary lives, with between 35.9 and 36.6 percent reporting no physical activity.[30] The Healthy People 2010 goal is to reduce the proportion of the state's adult population who engage in no physical activity to 20 percent.

In 1990, no state had an obesity rate above fourteen percent.[31] Just thirteen years later, thirty-five states had obesity rates above twenty percent. In 2007 only one state – Colorado – had a rate of obesity below twenty percent (barely – 19.3 percent). Tennessee ranks as the third fattest state[32], with 32.6 percent of the population being at healthy weight, 36.7 percent being overweight, and 30.1 percent considered obese.[33] While general obesity has more than doubled in the last two decades, the population of "morbidly" obese persons has quadrupled and the prevalence of "super morbidly" obese persons has quintupled.[34]

Demographically, obesity is most prevalent among black females (43.7%), followed by black males (40.5%), white males (26.1%) and white females (25.2%). Furthermore, rates of obesity are show to increase with age and decreased with education and income. Socioeconomic status, reflected by race and educational attainment, chiefly indicates the likely prevalence of obesity within a given population.

Behavioral risk factors for obesity are a function of eating habits and physical activity. While women of all races in Tennessee reported higher consumption than men of five fruits and vegetables a day, an indicator of overall nutrition, in 2005 just 27.3 percent of non-Hispanic white women in Tennessee and 28.9 percent of Hispanic non-white women reported consuming the recommended intake.[35]

B. Obesity as a Risk Factor of Morbidity and Mortality and the Economic Costs

- **Obesity and Cardiovascular Disease**

There is a strong relationship between excess body weight and increased risk of mortality due to cardiovascular disease and many cancers. Women who are obese have a 62 percent higher death rate due to cancer than do women of normal weight.[36] The proportion of all deaths from cancer that is attributable to overweight and obesity in U.S. women 50 years of age or older may be as high as 20 percent.[37] Obesity is linked to higher rates of type II diabetes, coronary heart disease, high blood pressure and osteoarthritis as well as a host of health complications: gallbladder disease, gout, impaired respiratory function, infertility, liver disease, pancreatitis and stroke to name a few.[38]

Obesity is directly responsible for elevating blood pressure, so much so that the risk of hypertension is five times as great in the obese. More than eighty-five percent of people with hypertension have a BMI above 25.[39] By dramatically affecting the circulatory system, obesity is directly responsible for significant incidence of heart disease, cerebrovascular diseases, and kidney disease/renal failure (nephritis, etc.). These are the first-, third-, and ninth- most prevalent causes of death for women in Tennessee, respectively.

Procedure	Mean Charges	In-Hospital Death Rate
Coronary Artery Bypass Graft	$85,653	2.1%
PCI	$44,110	0.8%
Diagnostic Cardiac Catheterization	$25,322	0.9%
Pacemaker	$43,101	0.9%
Implantable Defibrillator	$99,845	0.8%
Endarterectomy	$22,037	0.5%
Valves	$119,918	5.1%

- **Obesity and Cancer**

Obesity is associated with elevated instances of cancer – the second-most prevalent cause of death among Tennessee women. These cancers include, though are not limited to, breast, esophageal, liver, kidney, ovarian, gallbladder, pancreatic, stomach, endometrial (uterine), cervical and lymphoma.[40,41] Breast cancer is the single most common cancer for women (32 percent), followed by lung cancer (15 percent – discussed in the tobacco section), colorectal cancer (12 percent), and all other cancers (41 percent).[42] Endometrial cancer is very strongly associated with obesity, with overweight and obese women having two to four times the risk of women at a healthy weight.[43] Similar risk is found for kidney cancers[44] as well as esophageal cancers.[45]

- **Obesity and Diabetes**

Obesity is also a determinant of insulin resistance syndrome (IRS) which is the mechanism by which type II diabetes is manifested. Type II diabetes is a desensitizing of the body to insulin and is caused by the behavioral factors that lead to obesity – poor nutrition and little exercise. When examining the top-ten causes of death by age in Tennessee[46], diabetes appears as the fifth-leading cause for those aged 10-14, the seventh for ages 15-24, and eighth for ages 25-44. It is the seventh-leading cause of death for those aged 45-54, fourth for those aged 55-64, and seventh for those above 65. While the number of deaths is larger with each successive age group in absolute terms, the relative proportions illustrate that the rising rates of obesity and diabetes in the youth is a recent phenomenon. IRS is also associated with age-related memory impairment and Alzheimer's disease[47]; as such, mid-life obesity is a correlate of Alzheimer's disease.[48]

- **Economic Cost of Obesity**

Like other health-related issues, total obesity related costs are difficult to estimate because they are so far-reaching and all-encompassing. In addition to the predictable direct costs, which may include treatment for obesity based heart conditions, cancer and diabetes, there are significant other costs, such as depression and loss of confidence that may affect a woman's ability to work and interact with others.

Additionally, while the pharmaceutical industry has long searched for the miracle pill that would alleviate the obesity epidemic, the only tried and true method of addressing it is through modifications in diet and exercise. In addition to the time commitment, which may be considerable, the costs of such behavior modifications are not inexpensive. Think about the last time you shopped at the grocery. Which was more expensive: fresh salad greens or potatoes? Fresh fruit or instant rice? Whole wheat grains or old-fashioned, enriched-flour bread? However, the costs of not making these changes is unquestionably more economically damaging.

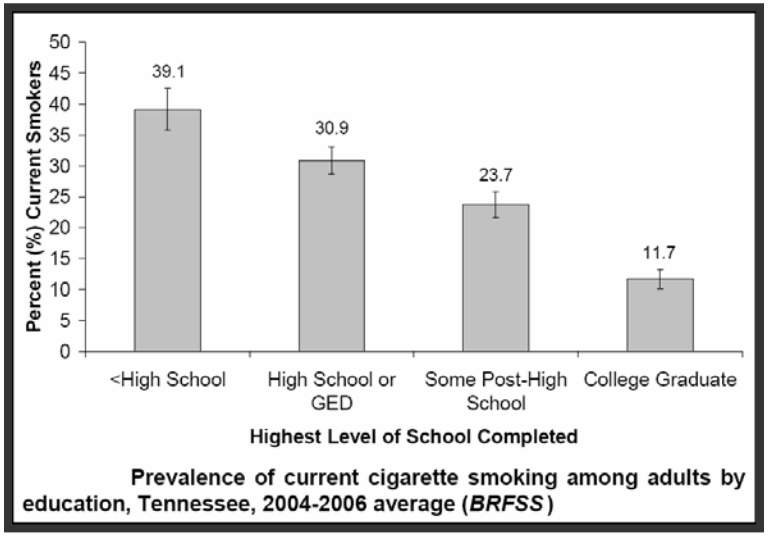


Figure 1. Demographics of Smoking in Tennessee
Source: Tennessee Department of Health, Office of Policy, Planning and Assessment

II. REGARDING TOBACCO

A. Demographics of Tobacco Use Approximately four hundred and forty thousand deaths per year are attributed to tobacco smoking in the United

States.[49] These deaths are mostly due to lung cancer and ischemic heart disease, responsible for 123,000 and 98,000 deaths, respectively.[50] Tobacco smoking is the leading cause of preventable death in the United States.[51]

Figure 1 illustrates the demographic breakdown of the smoking population of Tennessee[52], which in 2006 amounted to 22.6 percent[53] of the entire population. Tennessee has a higher rate of smoking than the rest of the United States since 1997 and compared to other states has the eleventh highest smoking rate.[54]

Figures 2 and 3 illustrate the strong negative correlation between socioeconomic status, education and the prevalence of smoking.[55] People with higher levels of education attainment and income do not use tobacco as much as those without. As opposed to most consumer products, tobacco is highly addictive[56], explaining its popular consumption. While over fifty percent of smokers of all ages attempt to quit in a given year[57], the number of smokers remains relatively consistent. The populations that have been graphically depicted as the most at risk of forming a tobacco habit include those that are poor, rural, less educated, and white.

In women, there is a demonstrated co-morbidity between the prevalence of tobacco use and the incidence of poor mental health – especially with regard to high levels of depression and anxiety. In fact, anxiety and depression have the closest correlation to tobacco use of all other isolated variables.[58]

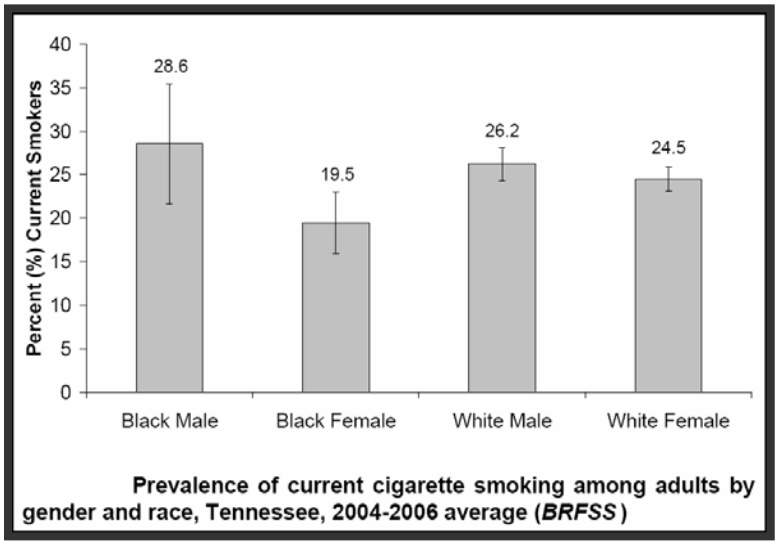


Figure 2. Relationship Between Educational Attainment and Smoking
Source: Tennessee Department of Health, Office of Policy, Planning and Assessment

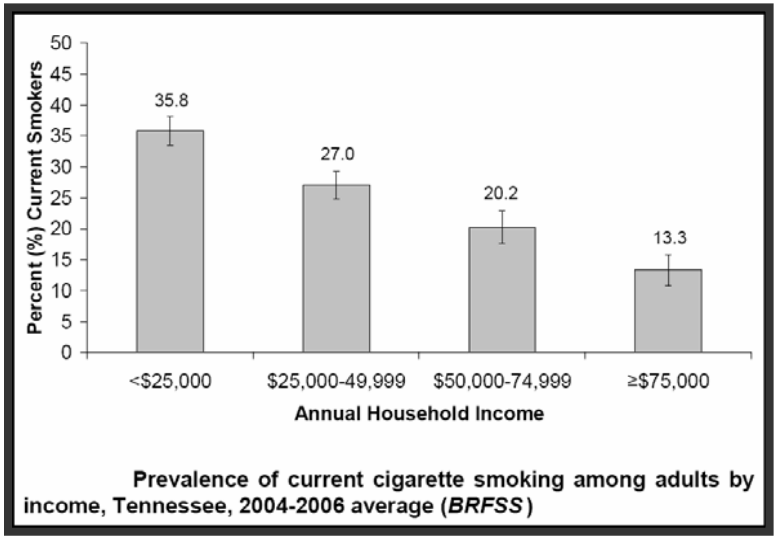


Figure 3. Relationship Between Income and Smoking
Source: Tennessee Department of Health, Office of Policy, Planning and Assessment

B. Tobacco Use as a Risk Factor of Morbidity and Mortality and the Economic Costs

- **Tobacco Related Illnesses**

The health problems that stem from tobacco for the individual are well documented – cancers, heart disease, emphysema, and gastric disturbances, to name a few.

In descending order of proportion, the mechanisms of tobacco-related death are cancers, cardiovascular diseases, and chronic respiratory diseases. Of the aforementioned 400,000 deaths in the United States, each set of morbidities is responsible for 160,372, 131,503, and 102,603 deaths respectively.[59] Nineteen percent of deaths each year can be attributed directly to tobacco consumption, including deaths from second-hand smoke, fetal complications, and fires from poorly-tended cigarettes[60].

It is well known that cigarette smoking accelerates vascular disease. Smoking is also an independent risk factor for thrombosis (clotting). Nicotine enhances platelet aggregation, and nicotine-induced epinephrine release can increase myocardial oxygen demand. The resulting ischemia (decreased blood supply) can trigger arrhythmias. Nicotine enhances lipolysis and thus supports unfavorable cholesterol profiles. Cigarette use increases the risk of dying from heart disease among middle-aged men and women by 300%... Lifelong smokers have a 1 in 2 chance of dying from a smoking-related disease and will lose an average of 12 years of life.

These effects, as well as numerous other well-documented maladies, are the general effects of tobacco on human health. There are, however, specific mechanisms by which women are impacted differently than men. For instance, the acute effects of nicotine are greater in women as they metabolize the chemical at a slower rate.[61] They also have a smaller airway caliber than men, and are thus tend to be hyper responsive to the effects of vasoconstrictive smoke. This may partially account for the fact that while women "… actually began smoking later and smoked fewer cigarettes than their male counterparts," the incidence of lung cancer morbidity for women rises, on average, a decade earlier in life.[62] Smoking also accelerates osteoporosis, a condition more often found in women than men.[63]

Second-hand smoke is a proven killer – there are roughly 3,000 deaths from lung cancer attributed to second-hand smoke alone, as well as heart disease, pneumonia, et cetera.[64] Non-smoking women who are married to smokers are especially at risk, with estimates of tobacco-related morbidity increasing twenty to forty percent within that population.[65]

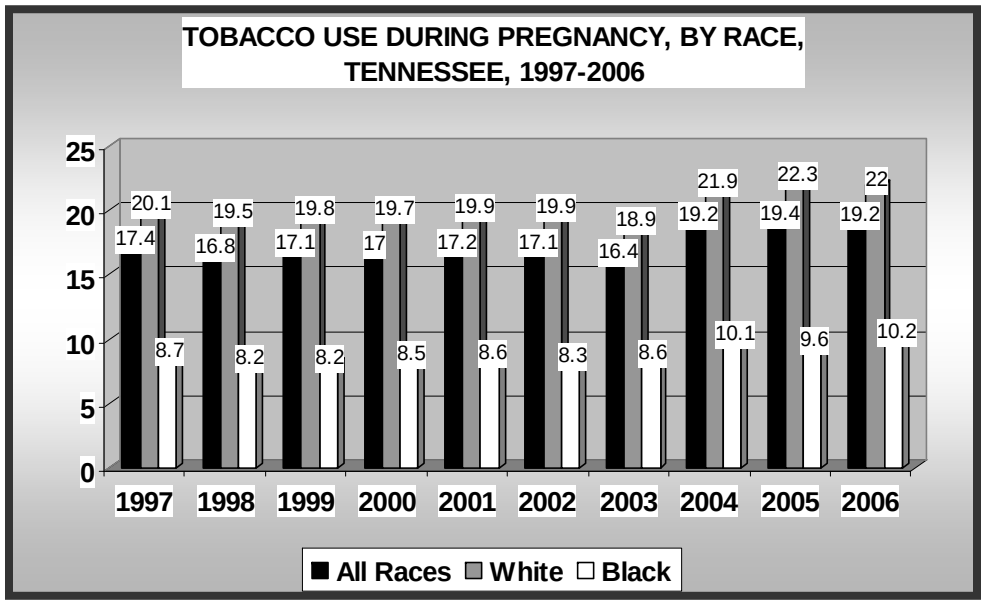


Figure 4. Race Demographics for Maternal Smoking
Source: Tennessee Department of Health, Division of Health Statistics

- **Maternal Smoking**

Smoking poses not only a risk to the individual smoking; overwhelming evidence shows that second-hand smoke is detrimental to children and non-smoking adults. As Figure 4 illustrates, nearly twenty percent of mothers in Tennessee smoked regularly during pregnancy.[66] Depending on the region, this rate ranges between seventeen and 30.1 percent. Sixty-two of Tennessee's ninety-five counties have a pregnancy smoking rate of at least twenty-five percent. The map below illustrates the relative geographic distribution of maternal smoking prevalence.[67] Note that the metropolitan regions generally have lower rates than the rest of the state.

Smoking during pregnancy is associated with low birthweight, a typical indicator of a newborn's health. Low birthweight infants have a higher risk of a variety of health problems including: cerebral palsy, seizure disorders, deafness, blindness, congenital anomalies, attention deficit and hyperactivity disorder, learning disabilities, asthma, upper and lower respiratory infections, and ear infections.[68]

Aside from low birthweight, infants born to smoking mothers are subjected to more hospital time, intensive care, and mortality.

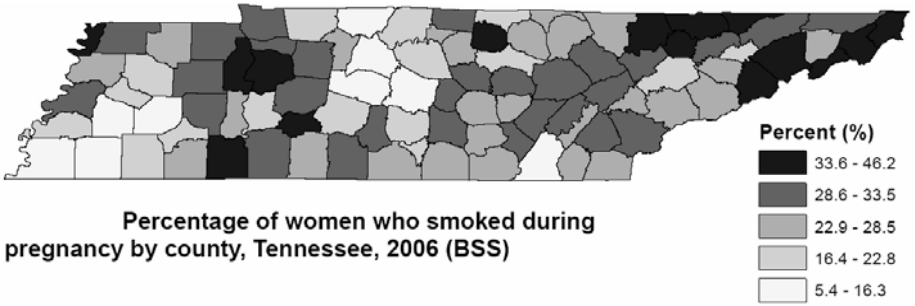
As was discussed in Women's Health Status, black women in Tennessee have much higher rates of low birthweight infants. However, they have lower rates of smoking during pregnancy, as seen in Figure 4. This relationship between race and low birthweight cannot be fully explained.

- **The Economic Costs of Tobacco Use**

According to the Kaiser Family Foundation 23 percent of Tennessee adult women are smokers.[69] Tobacco use remains the leading preventable cause of death and disease in the United States, responsible for more than 400,000 premature deaths each year.[70] The American Lung Association estimated in 2005 that Tennessee's economic costs due to smoking just among men and women 35 years and older totaled $4,267,837,000.[71] The cost of smoking includes direct, measurable costs such as adult medical spending, the costs of smoking during pregnancy, lost workdays, fires caused by smoking, and lost output from early death and retirement. Because women generally live longer than men, their lifelong extra medical costs attributed to smoking are typically higher than those of men.[72] Among adults, most smoking-related deaths were attributed to lung cancer, ischemic heart disease, and chronic airways obstruction.[73]

Smoking also causes more indirect and difficult-to-measure costs to Tennessee's economy caused by factors like lower productivity at work and the health costs of secondhand smoke. Smokers typically miss 50 percent more work time than their nonsmoking coworkers.[74] Both lung cancer and heart disease can be attributed to second hand smoke.[75]

For 1997–2001, cigarette smoking was estimated to be responsible for $167 billion in annual health-related economic losses in the United States ($75 billion in direct medical costs, and $92 billion in lost productivity), or about $3,561 per adult smoker according to the U.S. Centers for Disease Control and Prevention.[76] If $3,561 is converted to 2007 dollars using the Consumer Price Index, then cost is $4,169 per adult smoker. With 23 percent of Tennessee adult women reporting as smokers (approximately 547,718 women), then annual health-related economic losses to Tennessee caused by smoking are approximately $2,283,436,342. This figure does not include under-age smokers.



Percentage of women who smoked during pregnancy by county, Tennessee, 2006 (BSS)

The estimated economic impact of smoking cessation would be significant for Tennessee's economy. The American Legacy Foundation estimated $2,387,876 in Medicaid savings for Tennessee in 2001 with a 5 percent reduction in adult smoking. That figure jumped to $11,939,381 for a 25 percent reduction and to $23,857,249 for a 50 percent reduction.[77] This figure does not include the savings that would be gained from productivity due to fewer work absences, savings for private insurance or for other individual out-of-pocket expenses. During the period from 2001 to 2007 the smoking rate in Tennessee has

III. REGARDING DIABETES Diabetes is a chronic condition and a leading cause of death and disability in the United States. Complications of diabetes are serious and may include blindness, kidney damage, heart disease, stroke, and nervous system disease.[78] Women with diabetes have increased pregnancy complications and higher rates of infants born with birth defects.[79]

A. Demographics of Diabetes

While these complications occur in all populations that have diabetes, diabetes affects the health of women in particular when compared to men. The FDA reported in 2002 that: the risk for cardiovascular disease, the most common complication attributable to diabetes, is more serious among women than men. Deaths from heart disease in women with diabetes have increased 23 percent over the past 30 years, compared to a 27 percent decrease in women without diabetes. The risk of diabetic ketoacidosis (DKA) is 50 percent higher among women than men. DKA, often called diabetic coma, is a condition brought on by poorly controlled diabetes and marked by high blood glucose levels and ketones (by-products of fat metabolism in the blood). Although it is accompanied by high blood glucose levels, DKA is not caused by high blood sugar; it is caused by lack of insulin. Before insulin therapy was available, DKA was the predominant cause of death from diabetes. Women with diabetes are 7.6 times as likely to suffer peripheral vascular disease (PVD) than women without diabetes. PVD is a disorder resulting in reduced flow of blood and oxygen to tissues in the feet and legs. The principal symptom of PVD is intermittent claudication (pain in the thigh, calf, or buttocks during exercise).[80]

Looking at national demographics, "the prevalence of diabetes is at least 2-4 times higher among African American, Hispanic/Latino, American Indian, and Asian/Pacific Islander women than among white women."[81] In Tennessee 8.8 percent of white females were diabetic in 2005, compared to 12.4 percent of black females.[82]

B. Diabetes Risk Factors and the Economic Costs

Diabetes is itself a risk factor for all manner of medical complications. Diabetes is a correlate of hypertension – with two thirds of Tennessee diabetics reporting the condition[83] – and a primary cause of hyperglycemia[84] (high blood sugar). Both of these conditions contribute vascular degeneration and nerve damage.[85]

The dual conditions of nerve damage and vascular damage can have far reaching effects on the health of the individual; any area that is served by nerves and the circulatory system – all areas of the body – has the potential to be affected. As such, the progression of diabetes results in poor circulation which slows the body's ability heal.[86] As such, diabetes is the leading cause of necrotic conditions such as gangrene in developed nations, as well as the leading cause of amputation. The age-adjusted rate of lower-extremity amputation (LEA) in the diabetic population is approximately 15 times that of the non-diabetic population.[87] The list of diabetes complications further includes retinopathy[88], destruction of retinal blood vessels which can lead to blindness; 20.1 percent of diabetics related that a doctor confirmed retinal damage.[89] Diabetes is the leading cause of new blindness for Tennesseans between the ages of twenty and seventy-four.[90]

Kidney damage, potentially ending in renal failure, is a life-time complication of diabetes due to hyperglycemia and hypertension.[91] Diabetes is also the primary cause of kidney failure, responsible for a bulk of the new dialysis cases annually.[92] Diabetes and hypertension are also the most commonly reported conditions arising during pregnancy.[93] Both chronic and gestational (developing only during pregnancy) diabetes can pose health risks to the mother and infant and are a potential contributor to low birthweight.

Low birthweight babies are more likely to experience health problems such as: chronic asthma, epilepsy, cerebral palsy and other mental disabilities.[94] Babies that are LBW also tend to have more developmental disabilities, learning disabilities and high levels of distractibility as they age.[95] Research shows that women who do not receive adequate prenatal care are more likely to give birth to LBW babies and that mothers who do not have insurance are less likely to seek and obtain prenatal care.[96]

The logic behind focusing on LBW as a central target of policy is illustrated by an important health intervention effort in the United States – the prevention of cigarette smoking during pregnancy. Maternal smoking has been identified as the most significant, preventable risk factor for LBW incidence in developed countries.[97] According to the Tennessee Department of Health, 19.2% of women giving birth in Tennessee in 2006 smoked cigarettes during their pregnancies.[98] Similarly, the correlation between LBW and the hospital costs of birth has been used to calculate the sizeable cost savings of interventions that encourage smoking cessation during pregnancy.[99]

According to the American Diabetes Association (ADA) the total cost of diabetes in the U.S. is estimated at $174 billion for 2007. Diabetes is responsible for an estimated $116 billion in medical costs as well as $58 billion in reduced productivity from work-related absenteeism, reduced productivity at work and at home, unemployment from chronic disability, and premature mortality.[100] The ADA attributes the increase in the estimated cost of diabetes from $132 billion in 2002 (which if adjusted for inflation would be equivalent to $153 billion 2007 U.S. dollars) to the growth in diabetes prevalence, rising costs of medical care and improvements in data sources to estimate the costs of diabetes.[101] Much of this cost is preventable through improved diet and exercise, prevention initiatives to reduce the prevalence of diabetes and its co-morbidities, and improved care for people with diabetes to reduce the need for costly complications.[102]

The ADA estimates the economic cost of diabetes by assessing (1) the diabetic population, (2) health resource use attributable to diabetes, and 3) productivity forgone because of diabetes. By dividing the total number of healthcare expenditures attributed to diabetes by the number of people with diabetes the ADA reached an estimated excess healthcare expenditure per person with diabetes in 2007: $3,808 for those under 45 years, $5,094 for those 45-64 years, and $9,713 for those 65 and over.[103] The indirect costs attributed to diabetes, those caused by productivity foregone include absenteeism from work, reduced productivity while at work, reduced productivity for those not in the labor force, inability to work because of disability, and premature mortality. The ADA estimates the national cost of lost productivity associated with diabetes in 2007 at 6.6% (or 14 days per worker with diabetes per year).[104]At $58.2 billion associated loss.

- **Health Resource Use**

The American Diabetes Association points out that there is no readily available data source that is ideal for estimating the increased use of healthcare services associated with diabetes. However, they conclude that people with diabetes have longer hospital stays regardless of reason for admission and propose that 13% of hospital inpatient use in 2007 can be attributed directly to diabetes.[105] The ADA also concludes that 10% of nursing facility days and 8% of retail prescriptions can be attributed to diabetes.

- **How Tennessee Stacks Up**

Diabetes was the 7th leading cause of death for women in Tennessee for 2006, and its prevalence is not declining.[106] As can be seen in the graph above, Hispanic or non-white women have historically reported higher rates of diabetes, but in 2006 Non-Hispanic White women reported slightly higher rates of diabetes in Tennessee In 2004, 9.4 percent of births in Tennessee were low birth weight while the U.S. rate was 8.1 percent.[107]

IV. REGARDING OTHER RISK FACTORS

The factors that come together to determine the probability of morbidity and mortality are numerous and the relationships between those factors are complex. In the framework of preventative healthcare, however, lifestyle factors such as obesity and smoking have the greatest impact of any singular behaviors.

These lifestyle choices, however, cannot be presumed to be independent of mental health – an aspect of health often ignored with regard to treatment as well as prevention. Indeed, "while the [healthcare] system, personnel, and practices operate pretty much the same whether the need for care is encountered in Washington, D.C., or Chadron, Nebraska … this is not the case for mental healthcare."[108] This is disturbing, as good mental health is paramount to overall health and well-being; mental illness and emotion disturbance is a seemingly insurmountable barrier to the individual that results in a perceived lack of opportunity. Those with poor mental health are more likely to smoke or otherwise engage in substance abuse, as well as engage in a whole host of relatively risky behaviors.[109]

In Tennessee, twenty-three percent of men and thirty-one percent of women reported having "poor mental health."[110] This disparity in reported mental health is universal to all states, either indicating that women are subjected to conditions that more adversely affect mental health or that they are more aware of their problems. As will be discussed in the barriers section of this report, caregiving responsibilities, as well as other issues of income and means, negatively impact women's mental health to a greater degree than men's. Women especially are affected by the spectrum of anxiety disorders, indicating a greater perception of responsibility as well.

By and large, all risk factors are exacerbated when barriers – primarily those associated with low socioeconomic status – are present. According to the World Health Organization, "primary determinants of disease are mainly economic and social and therefore remedies must also be economic and social."[111] The incidence of poor nutrition, obesity, substance abuse, smoking, and mental illness are strongly and positively correlated with a lack of education, care options, and income.

SOME CONCLUDING THOUGHTS…..

There are over three million women in Tennessee; women make up more than 51% of our population. The health status of that many people, regardless of gender, has a significant impact on our overall economic status. It is imperative, then, to know where we are on the healthcare bridge.

How Tennessee Measures Up: Health Outcome Rankings For Men and Women, 2007

Poor Mental Health Days:	18th
Poor Physical Health Days:	46th
Infant Mortality:	48th
Cardiovascular Deaths:	48th
Cancer Deaths:	47th
Premature Deaths:	46th
All Health Outcomes:	46th

Source: United Health Foundation, America's Health Rankings 2007

Analyzing the current **health outcomes** (the effects of the healthcare process) for women enables health professionals and policymakers to determine the impact of past and current health interventions and evaluate the need for novel or more comprehensive programs for disease treatment. Trends in this health status help to identify new issues as they emerge, such as the growing epidemic of obesity related to diabetes development, so that more effective approaches of prevention can be crafted.

Though the significance of preventive care for women is not determined by a comparison with men, especially given that disease development is among the first negative impacts of a lack of preventive care, such a comparison may be relevant. Disregarding the reproductive system, women's health status is similar to men's with a few notable differences which have ramifications for preventive care. The 2004 Kaiser Women's Health Survey revealed that one of the few significant differences between men's and women's health was the greater population of women with chronic conditions,[112] and these estimates of chronic disease underestimate those of the CDC.[113] Women are also more likely to be obese and suffer more from arthritis.[114]

How Tennessee Measures Up: Women's Status on Health and Well-Being

Composite Score:	F
Heart Disease Mortality Rank:	48th
Lung Cancer Mortality Rank:	42nd
Breast Cancer Mortality Rank:	43rd
Incidence of Diabetes Rank:	48th
Poor Mental Health Rank:	32nd
Physical Activity Rank:	50th

Source: National Women's Law Center Report Card on Women's Health, 2007 Rankings

Additionally, the health status of Tennessee women is surpassed by the majority of states. In 2007 the National Women's Law Center examined women's health and well-being in each of the states using twenty-seven health status indicators including heart disease mortality, lung disease mortality, breast cancer mortality, incidence of diabetes, incidence of Chlamydia, incidence of AIDS, poor mental health, access to healthcare services (including insurance coverage), available health screenings, and physical activity and behavior indicators. Benchmarks for each of these indicators were set and evaluated nationally and using specific state information. Tennessee's rank was 45th among states with a grade score of F.

LEADING CAUSES OF DEATH FOR FEMALES BY RACE, WITH PERCENT OF DEATHS PER 100,000 POPULATION RESIDENT DATA, TENNESSEE, 2006						
Cause	Total	Percent	White	Percent	Black	Percent
Total Deaths	28,232	100.0	23,951	100.00	4,151	100.0
1. Diseases of Heart	7,055	25.0	5,963	24.9	1,070	25.8
2. Malignant Neoplasms	5,999	21.2	5,034	21.0	931	22.4
3. Cerebrovascular Diseases	2,046	7.2	1,730	7.2	254	6.1
4. Alzheimer's Disease	1,526	5.4	1,377	5.7	145	3.5
5. Chronic Lower Respiratory Diseases	1,521	5.4	1,426	6.0	93	2.2
6. Accidents	1,243	4.4	1,108	4.6	120	2.9
Motor Vehicle Accidents	452	1.6	390	1.6	53	1.3
7. Diabetes	913	3.2	660	2.8	249	6.0
8. Influenza and Pneumonia	878	3.1	791	3.3	87	2.1
9. Nephritis, Nephritic Syndrome and Nephritis	399	1.4	308	1.3	89	2.1
10. Septicemia	352	1.2	280	1.2	68	1.6

Figure 1. The Leading Causes of Death for Tennessee Women Are Heart Disease, Cancer, Cerebrovascular Disease, and Alzheimer's disease

Source: Tennessee Department of Health, The Health of Tennessee's Women 2006, (January 2008), p. 4.

According to the Tennessee Department of Health, diseases of the heart and malignant neoplasms (cancer) accounted for almost half (46.3 percent) of all deaths of Tennessee's women in 2006. Cerebrovascular diseases (stroke) were the next leading cause of death among all Tennessee women. Chronic lower respiratory disease was the fourth leading cause of death for white females, while diabetes was the fourth leading cause for black females. Alzheimer's disease ranked fifth for both white and black females.[115]

If we could reduce the number of deaths due to those preventable chronic illnesses which are at the top of the list of causes of death for women, through wellness, screenings and early diagnosis, a significant economic burden would be removed from thousands of Tennesseans.

I. CARDIOVASCULAR AND CEREBROVASCULAR DISEASE

Cardiovascular disease refers to any disease affecting the heart and blood vessels but is commonly referred to as heart disease or used to refer specifically to atherosclerosis (hardening of the arteries). Cardiovascular disease encompasses cerebrovascular disease which includes all disorders in which an area of the brain is temporarily or permanently affected by ischemia or bleeding and one or more of the cerebral blood vessels are involved. Cerebrovascular disease is most commonly manifested as stroke. Cardiovascular and cerebrovascular diseases involve many of the same risk factors: smoking, high blood pressure, high blood cholesterol, physical inactivity or obesity.[116]

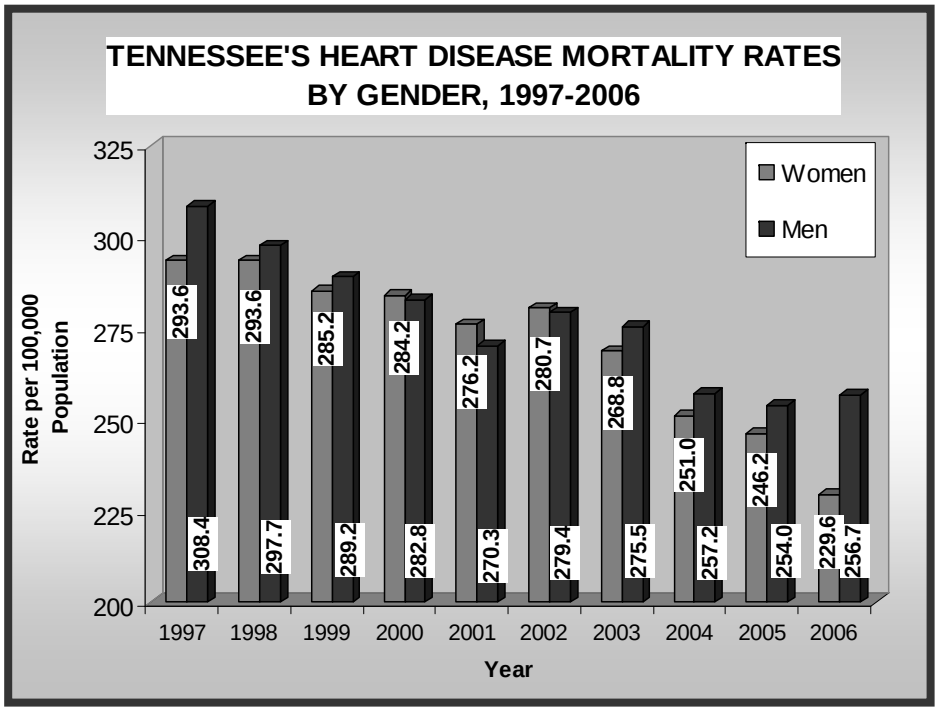


Figure 2. Tennessee Women's Heart Disease Mortality Rivals Men's.
Source: Tennessee Department of Health, The Health of Tennessee's Women 2006

Mortality from heart disease, the leading cause of death in Tennessee, has declined in recent years, but cardiovascular disease remains a significant threat to women's health. The death rate for males declined 16.8 percent from 1997 to 2006, while the rate for females decreased 21.8 percent for the same period.[117]

Yet underpinning these improvements are significant disparities in the manifestation of heart disease in men and women and across racial groups. In 2005, adult women in the United States under 45 years had a higher rate of heart disease than men of the same age (50.9 versus 35.2 per 100,000 adults, respectively) though men had a slightly higher overall rate of heart disease than women. Heart disease rates among both sexes increased with age. In the same year the highest rate of heart disease was among non-Hispanic White women (128.7 per 1,000), followed by non-Hispanic Black women (107.1 per 1,000); Asian women had the lowest rate (51.1 per 1,000). Although non-Hispanic white women experience the highest rates of heart disease, deaths from heart disease are highest among non-Hispanic Black women.[118] Among Tennessee women, this disparity in mortality between white and black women is significant for both cardiovascular and cerebrovascular disease. Mortality rates from cerebrovascular disease also demonstrate a large disparity by gender. Though the rate has decreased markedly for both sexes over the same time frame, the female death rate from cerebrovascular disease has exceeded the male death rate for over a decade. It is interesting to note that recent research suggests that women receiving hormone replacement therapy (HRT) have an overall 29 percent increased risk of stroke.[119] Stroke is a leading cause of serious long-term disability which presents a considerate cost for care.[120]

II. CANCER

It is estimated that just over 270,000 women died of cancer in the United States in 2007.[121] Trachea, lung and bronchus cancer was the leading cause of cancer death among Tennessee women in 2006, accounting for about a quarter of cancer deaths, followed by breast cancer, with half as many women dying from breast cancer as from lung cancer.[122] Colon and rectal cancer, ovarian cancer, uterine and cervical cancer are also significant causes of cancer deaths among females. Due to the varying survival rates for different types of cancer, the most common causes of cancer mortality are not necessarily correlated with cancer morbidity. For instance, although lung and bronchus cancers cause the greatest number of deaths in the United States, breast cancer is the most common type of cancer among women. In addition, other types of cancer, such as some skin cancers, are common but may not lead to death.

- **Respiratory Cancer**

Respiratory cancers are the leading cause of cancer death for women in Tennessee.[123] There is not a significant difference between rates of mortality due to respiratory cancers for white or black women in Tennessee. Perhaps this is because prevention is simply smoking cessation rather than a clinical screening like a mammogram which depends on healthcare access. Lung cancer became the leading cause of cancer-related death to Tennessee women in 1984. At that time, the rising trend for deaths from lung cancer among Tennessee women paralleled the U.S. trends; however, while U.S. rates increased 127.0% from 1968 to 1980, the last year for which final statistics are available, Tennessee rates rose 140.2% during that period.[124] In 1984 the CDC recommended that the health professionals and public should focus attention, time, and effort on reducing smoking to control the new epidemic.[125] However, 24 years later, trachea, bronchus and lung cancers are still the greatest cause of cancer deaths for Tennessee women.

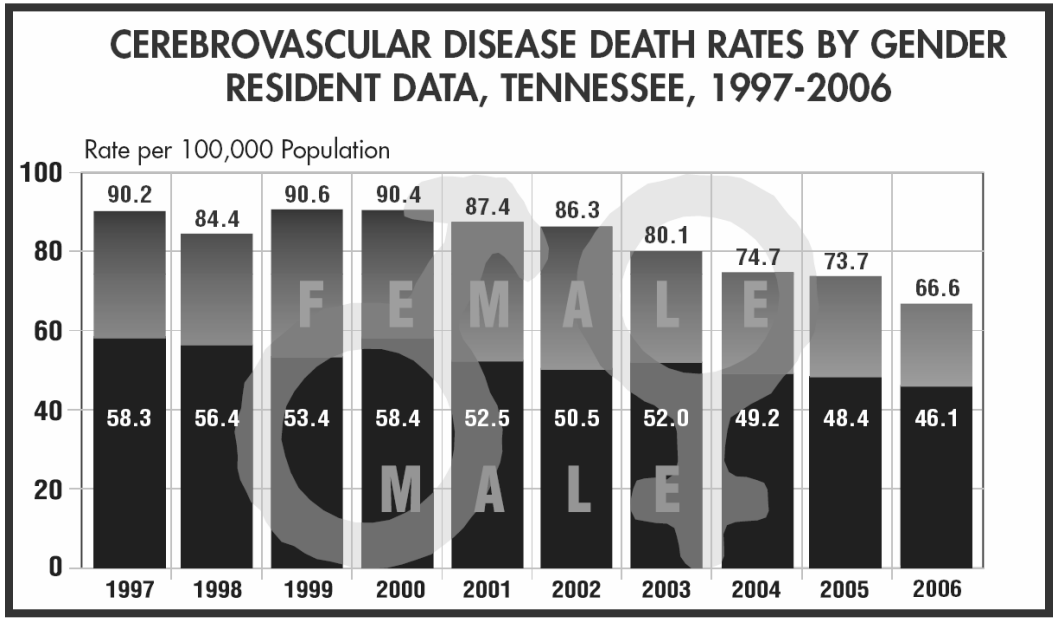


Figure 3. Tennessee Women have Significantly Higher Mortality Rates for Cerebrovascular Disease than Tennessee Men
Source: Tennessee Department of Health, The Health of Tennessee's Women: 2006

- **Breast Cancer**

Breast cancer is the second leading cause of cancer death among Tennessee women. In 2006 there were 28.8 deaths attributed to breast cancer per 100,000 of the female population.[126] Screening for breast cancer can reduce the mortality rate by providing early detection. The Tennessee Behavioral Risk Factor Surveillance System provides information on the percent of women aged 40 and older who stated they had a mammogram within the last two years. Tennessee's 2002 through 2006 survey percentages exceeded the national objective for the year 2010 of 70 percent with 79.4 percent of women reporting having a mammogram.[127]

- **Cervical Cancer**

Though cervical cancer is not one of the leading causes of cancer mortality, this illness is a woman's disease, its burden is more pronounced in certain demographics, and preventive measures play a pivotal role in the future of this cancer. Mortality from cervical cancer is greatly reduced with the use of a Pap test through early detection and intervention. The Tennessee Behavioral Risk Factor Surveillance System results indicate that the percent of women 18 years and older that did not have a pap smear within the past two years increased for 2004 through 2006. In 2006 24.9 percent of Tennessee women 18 and older had not had a Pap test in the past 2 years.[128]

III. ALZHEIMER'S DISEASE

Alzheimer's is a progressive and fatal disease which destroys brain cells, causing problems with memory, thinking and behavior. It is the most common form of dementia and the sixth leading cause of death in the United States.[129] Alzheimer's is the fourth leading cause of death for women in Tennessee.[130] Rates of death attributed to Alzheimer's are higher for white women than for black women in Tennessee.[131] Although Alzheimer's affects men and women at nearly the same rates (women are slightly more likely to get Alzheimer's disease than men), Alzheimer's disease has particular relevance for women because the number of women living with the disease at any one time is twice as high as the number of men simply because women live longer.[132] The number of Americans living with Alzheimer's is expected to rise significantly in coming years as well because of the aging population.

IV. MATERNAL AND PRENATAL CARE

Through early risk detection, maternal and prenatal care is important in the prevention of low-weight births and premature birth.[133] A complex web of social, environmental and individual factors contribute to the risk of low birthweight babies; they will be discussed in Risk Factors. Behavioral risks such as smoking and poor nutrition can be altered while factors such as age and race obviously cannot.

Tennessee has had a higher rate of low birthweight babies (infants weighing less than 2,500 grams (5 lbs., 8 oz.) at birth) than the United States since 1994.[134] Between 1994 and 2004 the incidence of low birthweight in Tennessee was higher among higher among African Americans than among whites, higher among non-Hispanics than among Hispanics, higher among teenage mothers and mothers older than 34 years of age, higher among women with the following risk factors than in women without them: less than a high school education, household income less than $25,000, unmarried, inadequate prenatal care, cigarette smoking, inadequate pregnancy weight gain, and multiple births (i.e. twins, triplets, etc.).[135] In 2006, the total percent of Tennessee births that reported care beginning in the first trimester was 71.8. Mothers under the age of 25 were much less likely to report beginning prenatal care in the first trimester of their pregnancy. The national goal for the year 2010 is for 90.0 percent of all births to have prenatal care beginning in the first trimester.

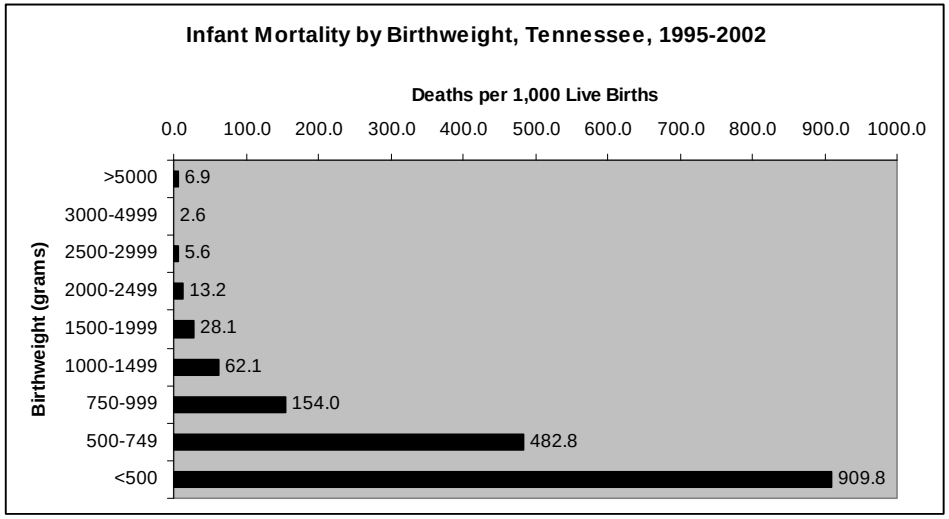


Figure 4. Infant Mortality and Low Birthweight
Source: Tennessee Department of Health, The Health of Tennessee's Women: 2006

The higher incidence of low birthweight babies among black women in Tennessee has not been fully explained. Though there is a clear relationship between race/ethnicity and socioeconomic status, low birthweight race disparities still exist after controlling for inputs like income, education, tobacco use and maternal illness.[136]

CONCLUSION

The Tennessee Economic Council on Women asserts that it is imperative to examine Tennessee women's health status and its resulting economic impact through an assessment of health outcomes: mortality from cardiovascular and cerebrovascular disease, cancer, Alzheimer's disease, and diabetes. These measures of mortality are among the leading causes of death for Tennessee women, as well as being some of the diseases for which prevention has the greatest impact. This impact may manifest itself in multiple ways—the avoidance of disease is only one positive outcome. For Alzheimer's, that preventive impact may slow the onset and progress of the disease so that care giving burdens are lessened for the women more likely to be caregivers, in addition to improving the quality of life for the patient. Reducing mortality is only one part of a larger picture of improving the quality of life and economic empowerment of women. The fifth indicator utilized in this report is maternal and prenatal health, constituting a profound impact on women's well-being, economic status, and the quality of life of future generations of Tennesseans. Collectively, these statistics, which do reveal demographic disparities, reflect upon the need for the preventive healthcare services throughout a woman's life.

The above are the health issues which affect women the most, and though a woman's contribution to the next generation of life is valued and important, the Council has depicted the different and significant health challenges present as a woman progresses from one stage of life to another. Each of these poor health outcomes demonstrates at least one of the following: a state rate worse than the national average, impacts on females exceeding those on males, racial and ethnic disparities, or an increasing rate of poor results. The imperative for preventive care is clear given the preventable nature of many of these illnesses and conditions and the treatable aspects of all of them. A woman's health is a reflection upon her quality of life, her confidence, and the contributions she is able to make to society, and the state of women's health in Tennessee demands we strive for improvement.

The ever-present question, "who pays?" becomes a secondary priority when viewed in light of the overwhelming costs. The state and federal governments pay in providing coverage, employers pay for coverage and lost productivity, and individuals pay for coverage and additional, often non-documentable costs such as transportation, childcare, time and the like. Of vital and primary importance is the recognition that, although some of these conditions are determined at least in part by genetics, behavior also plays a significant role in their development and exacerbation. If we didn't significantly lack time and money, exercising daily, choosing healthy (assuming they are available) food options and taking care of our personal needs as well as those around us, would not pose a problem. Those issues do, and are trending to continue, exist.

This is the point where we fill two roles in the healthcare bridge analogy. We are both the drowning person who fell in the hole (as can be seen by the numbers) and we are, concomitantly, the rescuer who decides to walk upstream to discover the source of the people who have fallen in the water. It can be overwhelming to recognize that we are the ones who must save ourselves. But we are and we must.

The economic toll on families, purely on a dollar basis, is staggering. Added to that the premature loss of lives and, even more often, the loss of the enjoyment of life, exacts an even bigger fine. Given the fact that we will not likely see a lessening of hard costs, it is to our benefit to lessen the need for healthcare services. Preventative care, in the form of behavior designed to advance our health status, is absolutely necessary.

There are several ways to keep people from falling through the holes in the healthcare bridge. The best, of course, would be to completely patch it so that no one is in danger of falling through. Unfortunately, neither the costs associated with care nor the incidence of disease is predicted to decrease at a rate that would permit this in the foreseeable future. A sign can always be erected to warn of the dangers ahead so that the number of people who fall through is, hopefully, limited. In order for this measure to be effective, we must make sure that those people who need to cross can read and interpret the warning signs and that, in part, is what this publication attempts to do. However, each person who crosses this healthcare bridge to wellness has another option. Instead of waiting until the hole is completely repaired, each person can place her plank across it so that she may cross without falling into the river. Preventive care is that plank.

Tennessee women face multiple, aggregate barriers to receiving the preventive healthcare essential to combating the chronic disease development for which they are at risk. This problem is not merely a healthcare issue but a societal challenge exacerbated by socioeconomic inequality. The current lack of extensive preventive healthcare results in millions of dollars of economic loss for Tennessee society. Several initiatives could effectively reduce this cost and improve the quality of life for Tennessee women by decreasing risk factors for illness and overcoming barriers to utilizing health services.

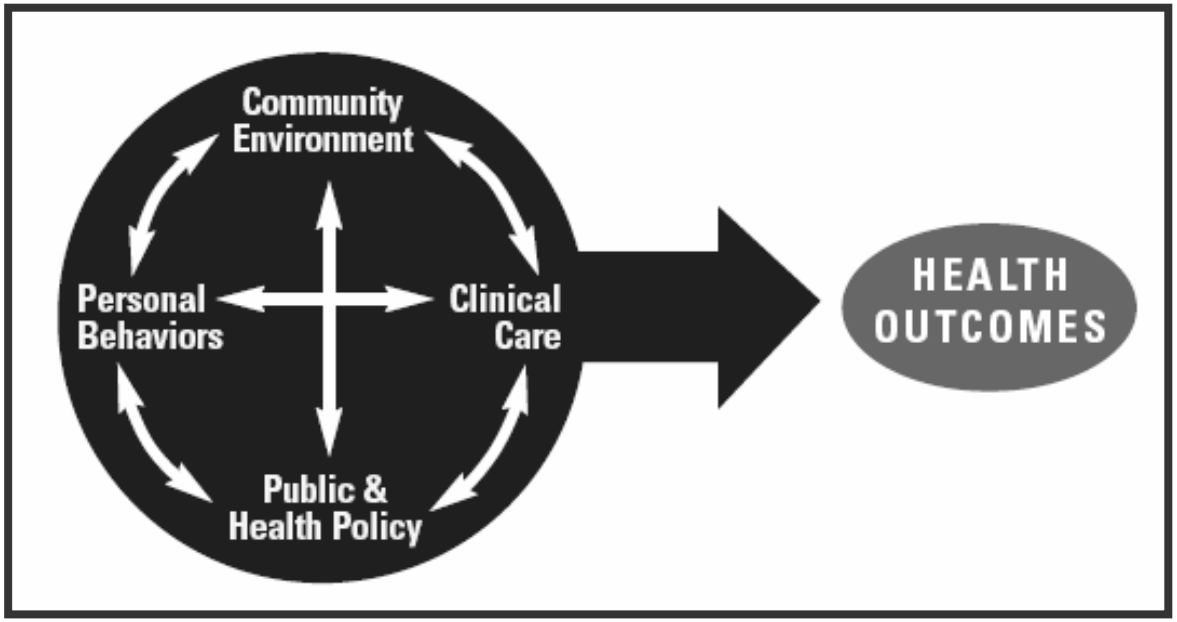


Figure 1 The Components of Health
Source: United Health Foundation, *America's Health Rankings*, www.unitedhealthfoundation.org

The result of women facing structural and cognitive barriers to preventive care is simple: Tennessee women do not receive the amount of preventive care possible, desirable, or planned. Many state programs are designed to address the socioeconomic aspects of a lack of prevention through various approaches engaging multiple sectors of society. These programs serve many of the underserved, but gaps remain in the structure of the bridge, and many more women continue to fall into the river.

As health outcomes are a product of the interactions of each element in a person's health-related behaviors, many of the adverse health outcomes experienced by women can be improved with widespread, comprehensive approaches to health and wellness. Recognizing the

influence of socioeconomic status on health behaviors can lead to empowering solutions which engage entire communities. With this understanding, a new paradigm of healthcare—cognizant of all the factors outside the clinic which impact healthcare and all the facets of life in turn impacted by healthcare—will emerge. In order to influence these improved health outcomes for women, and correspondingly, their economic empowerment and the health of their families, three broad-based policies should be pursued.

I. An Extension of Programs Addressing Socioeconomic Barriers

A. Cancer Screening Programs

Tennessee's Breast and Cervical Cancer Screening Program (BCSP) is a statewide fulfillment of the CDC's initiative of the same name, active in all U.S. states and many tribal areas as well as U.S. territories. Tennessee's BCSP serves an approximate annual 14,000 uninsured and underinsured women by providing free clinical breast exams, mammograms, and pap tests, along with any required follow-up diagnostic testing, at each of the county health departments and sixteen additional sites. This prevention program targets these cancers because all women are at risk for them, and they are relatively easy to diagnose in early stages.

This program is available to women whose income is under 250% of the Federal Poverty Level with breast cancer screening provided to women 50 and older and cervical cancer screening to those 40 and older. Additionally, women ineligible by age may become eligible for screening due to family history or previous diagnostic tests. The program continues to increase the number of women it serves but reaches just 10% of eligible women. The program currently is able, for fiscal reasons, to provide mammograms for eligible women over 50. With maximum increases in funding, this program could provide cancer screening to an additional 100,000 Tennessee women each year and lower the age of eligibility for mammograms to 40 years.

B. Programs for Women and Children

The Women, Infants and Children's Program (WIC) serves approximately 170,000 Tennesseans each month, of which about 55,000 are pregnant or postpartum women. Since the economic downturn demands for WIC food and infant formula vouchers has risen. Currently the Federal government's policy is to allow into the program all who qualify; however, the program is operating at maximum output. WIC provides nutritionists to teach individuals or groups proper nutritition and registered dietitians to counsel individuals with special dietary needs such as hypertension, diabetes and weight management. Breastfeeding classes and support are also available to all new mothers. These sorts of services help low-income women learn the basics of wellness through proper diet.

C. Prenatal Care

A variety of programs have been shown to reduce the number of LBW babies including smoking cessation programs for pregnant women, universal and comprehensive health care coverage for pregnant women and competent prenatal care. The Tennessee Department of Health offers family planning services in every county health department clinic. Birth control services are provided on a sliding fee scale based on family size and income. Persons below the federal poverty level are not charged for services.

Two home-visiting programs work with prenatal and postnatal women on a variety of issues. Healthy Start is a home visiting program that provides education, health referrals, screening and support for first time parents. HUGS reaches out to women with comprehensive wellness advocacy by bringing educational resources into women's homes. Home visitors with the HUGS program create individual health plans for women and their children, educate women about accessing health and social services, family planning and nutrition, parenting skills, domestic violence, and encourage women to achieve personal education goals. These programs all work to alleviate rates of low birthweight babies and support low income women's overall wellness.

II. Prevention Programs

Federal funding for prevention is available at the state level through multiple grant sources, but preventive care is rarely extricated from the complexities of a multifaceted healthcare system. For example, the Preventive Services Block Grant contributes to activities covered by this report, such as screening for cancer, cholesterol, and diabetes, as well as more broadly defined prevention: fluoridation of water, providing bicycle helmets, and supporting the construction of walking trails.

The primary determinants of disease are mainly economic and social and therefore its remedies must also be economic and social.

—Geoffrey Rose, DM
author of The Strategy of Preventive Medicine

A. Smoking Cessation

Tennessee's smoking cessation programs include: the Tennessee Tobacco QuitLine which provides a free Tobacco Quit Kit and free personal coaching for a year to all Tennessee residents. Other Tennessee Department of Health programs such as Helping Us Grow Up Successfully work toward smoking cessation, especially targeting pregnant women. Smoking cessation programs have a high rate of success: in the first seven years of California's Tobacco Control Program, it saved $3 in smoking-related health care costs for every dollar it spent on tobacco control.[137]

B. Diabetes Treatment

The Diabetes and Health Improvement Act of 2006 authorized the establishment of the Tennessee Center for Diabetes Prevention and Health Improvement. The purpose of the Center is to develop, implement, and promote a statewide effort to combat the proliferation of Type 2 diabetes through the administration of two grant programs. The first program provides grants to high schools to promote the understanding and prevention of diabetes, and a second set of grants goes to health care providers for education, prevention, and treatment of pre-diabetes and diabetes.

Regional and local health departments across Tennessee employ health educators and other staff who work with communities to develop programs to prevent and reduce complications associated with diabetes. Some programs include diabetes patient education,

worksite wellness efforts, Walk Across Tennessee, (an eight-week walking/exercise program) and Dining with Diabetes (a series of three classes offered to people with diabetes focused on healthful food choices and cooking techniques).

The Diabetes Control Program seeks to reduce the burden of diabetes in Tennessee by use of strategies that focus on community interventions, health communications and health care systems changes. The Diabetes Advisory Council, composed of representatives from private health care, public health, non-profit agencies and consumer groups, provides technical assistance. A significant accomplishment of the Council was the development of a diabetes medical record, which is being used by health care professionals and insurers throughout Tennessee and other states as a tool to assist in quality diabetes management.

III. Commitment to Building Healthy Communities

A. Community models

GetFitTN is a statewide awareness program developed by Governor Phil Bredesen to address the rising epidemic of Type 2 diabetes and risk factors that lead to diabetes, like obesity. The program combines advice on diet, nutrition, exercise and events designed to encourage all Tennesseans to get physically fit. Information is accessible on the Department of Health's webpage and, although this is a State initiative, it provides ideas and a template for local communities, regardless of size, to use in encouraging their citizenry to become healthier. In many ways, the information provided through this program falls squarely into those behaviors identified as "preventive healthcare" in this report.

B. Community Development Should Include Health Component

As communities change and grow, whether in response to economic stimuli or changing demographics, there are opportunities to discuss their roles in assisting families to become healthier. For example, additional safe greenways are a logical way to increase the opportunity for physical activity. Framers' markets, whether publicly or privately funded, may provide individuals with better access to fresh fruit and vegetables. Even discussions of school rezoning should include the realization that encouraging and allowing students (and parents) to safely walk to school can make a significant positive contribution to Tennessee's overall health.

Local governments can do much for women's health through the passage of policies for sustainable infrastructure and a commitment to the environment. Helping citizens reduce their carbon footprint through the availability of city recycling programs, local, affordable and organic foods, safe and walkable streets and sidewalks, and accessible mass transit systems makes for a healthier community. Wellness, exercise and good nutrition can become part of every woman's life. A commitment to clean air and water are also components of a holistic approach to wellness for communities. Sustainable towns and cities are places where all women can not only obtain high quality healthcare for illness and access preventive screenings and wellness counsel. In these places all women can access nutritious food, safe streets, and clean air, all of which improve their overall health and, conversely, lower health costs.

IV. Technological Advances

A. Records Management

The Council recommends the consideration of records management, especially in the form of patient records/history, in a format that would both reduce the necessity of patient time in completing duplicate forms and reduce the likelihood of repeat diagnostic testing. Maintaining patient records, including prescribed medications and physician contact information, only makes sense when patients visit different clinics, healthcare professionals, and pharmacies, many times for the same or related illnesses. The administrative time spent in compiling, filing, maintaining and accessing patient records could be significantly reduced as would patient frustration with the current accepted practice.

B. TeleHealth

One of the most persistent health care challenges in rural Tennessee is the lack of specialists in most rural areas. In 2006, Governor Phil Bredesen established the Governor's eHealth Advisory Council. One of the Council's projects is the **Tennessee TeleHealth Network** which will connect specialists in urban areas with community health centers serving disadvantaged or isolated populations throughout the state. By the end of calendar 2007 the Community Health Network will equip and connect up to 45 Federally Qualified Health Centers and Community Mental Health Agencies for TeleHealth. The clinics will be equipped with specialized medical equipment related to video conferencing and the remote administration of medicine.

These are but a few of the first logical steps that could be taken in an effort to reduce costs and improve healthcare in our State. Interestingly, many of these steps require patient involvement rather than governmental or corporate control. As with so may other economic issues that women face, in many ways, it is our choices and practices that will make the difference. We are being called on to repair the bridge; in the meantime, it is in our collective interest to avoid the hole that threatens to sweep us downriver.

Good health is about more than treating disease: it is about quality of life. Comprehensive Health Programs address the roots of quality of life, the barriers to consistent preventive care and behavioral risk factors. These programs reach women where the obstacles to health care have left them, often visiting them in their homes and providing education about preventative measures and service access. Good health requires education in order for the individual to become her own best advocate for health. Long-term patient/physician relationships help encourage overall healthy lifestyles by addressing behavior-based risk factors such as obesity and tobacco use. Good health for women is important not only during prenatal and postpartum periods but throughout a woman's life. Programs that acknowledge the roots of health, a woman's lack of financial ability to access services, her insurance status, transportation availability, care giving responsibilities, and time and attitudinal barriers, give her a better chance at good health, longevity and productivity.

In sum, the goal is not to recreate old wheels or to simply throw more money at the healthcare problem. By realizing that there are many ways to address our healthcare concerns, we can work smarter to access the programs and information already in place. Preventive healthcare should be a way of life for all of us -- and it can be.

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